

Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

Formation and Stability of Band Patterns in a Rotating Suspension-Filled Cylinder GABRIEL SEIDEN, Max Planck Institute for Dynamics and Self-Organization, MARIUS UNGARISH, STEVE LIPSON, Technion-Israel Institute of Technology — The phenomenon of segregation and pattern formation in the complex system of a rotating horizontal cylinder completely filled with a dilute suspension of non-Brownian particles has been the focus of several recent investigations. Here we present a general dimensionless analysis of the phenomenon, which reveals the importance of the different dimensionless parameters involved, and a detailed account of the mechanism of segregation and formation of axial bands for the case of low viscosity fluids. The question of stability of the band patterns is also addressed.

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Date submitted: 04 Aug 2007

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